DEPARTMENT OF THE AIR FORCE
59TH MEDICAL WING (AETC)
JOINT BASE SAN ANTONIO - LACKLAND TEXAS

18 MAY 2016

MEMORANDUM FOR ST
ATTN: SANDRA VALTIER

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Correlation between SNPs in Interleukin and Cannabinoid Receptor Genes and Type 2 Diabetes Mellitus in the Military** presented at/published to **2016 Military Health System Research Symposium (MHSRS), Kissimmee, FL August 2016** with MDWI 41-108, and has been assigned local file #**16198.**

2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.

3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are 59 MDW staff member, we can forward your request for funds to the designated wing POC.

4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

Linda Steel-Goodwin

LINDA STEEL-GOODWIN, Col, USAF, BSC
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

INSTRUCTIONS

USE ONLY THE MOST CURRENT 59 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

1. The author must complete page two of this form:
   a. In Section 2, add the funding source for your study [e.g., 59 MDW CRD Graduate Health Sciences Education (GHSE) (SG5 O&M); SG5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP) ; Grants; etc.]

   b. In Section 2, there may be funding available for journal costs, if your department is not paying for figures, tables or photographs for your publication. Please state "YES" or "NO" in Section 2 of the form, if you need publication funding support.

2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.

3. Attach a copy of the 59 MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g. case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box.

4. Attach a copy of your abstract, paper, poster and other supporting documentation.

5. Save and forward, via email, the processing form and all supporting documentation to your unit commander, program director or immediate supervisor for review/approval.

6. On page 2, have either your unit commander, program director or immediate supervisor:
   a. Print their name, rank/grade, title; sign and date the form in the approving authority's signature block or use an electronic signature.

7. Submit your completed form and all supporting documentation to the CRD for processing (59crdpubspres@us.af.mil). If you have any questions or concerns, please contact the 59 CRD/ Publications and Presentations Section at 292-7141 for assistance.

8. The 59 CRD/Publications and Presentations Section will route the request form to clinical investigations, 502 ISG/JAC (Ethics Review) and Public Affairs (59 MDW/PA) for review and then forward you a final letter of approval or disapproval.

9. Once your manuscript, poster or presentation has been approved for a one-time public release, you may proceed with your publication or presentation submission activities, as stated on this form. **Note:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.

10. If your manuscript is accepted for scientific publication, please contact the 59 CRD/Publications and Presentations Section at 292-7141. This information is reported to the 59 MDW/CC. All medical research or technical information publications/presentations must be reported to the Defense Technical Information Center (DITC). See 59 MDWI 41-108, *Presentation and Publication of Medical and Technical Papers,* for additional information.

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement:
"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components"

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving humans:
"The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02_AFI 40-402."

NOTE: All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving animals, as required by AFMAN 40-401_IP :
"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1. TO: CLINICAL RESEARCH	2. FROM: (Author's Name, Rank, Grade, Office Symbol)	3. GME/GHSE STUDENT:	4. PROTOCOL NUMBER:
	Sandra Valtier/GS13/ST	☐ YES ☒ NO	FWH20150054N

5. PROTOCOL TITLE: (**NOTE:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.)

Pharmacogenomic Risk Profile Application in a Clinical Setting

6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED:

Correlation between SNPs in Interleukin and Cannabinoid Receptor Genes and Type 2 Diabetes Mellitus in the Military

7. FUNDING RECEIVED FOR THIS STUDY? ☒ YES ☐ NO FUNDING SOURCE: AFMS

8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES: ☐ YES ☒ NO

9. IS THIS MATERIAL CLASSIFIED? ☐ YES ☒ NO

10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.?
☐ YES ☒ NO **NOTE:** If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.

11. MATERIAL IS FOR: ☒ DOMESTIC RELEASE ☐ FOREIGN RELEASE
CHECK APPROPRIATE BOX OR BOXES FOR APPROVAL WITH THIS REQUEST. ATTACH COPY OF MATERIAL TO BE PUBLISHED/PRESENTED.

☐ 11a. PUBLICATION/JOURNAL (List intended publication/journal.)

☐ 11b. PUBLISHED ABSTRACT (List intended journal.)

☒ 11c. POSTER (To be demonstrated at meeting: name of meeting, city, state, and date of meeting.)
2016 Military Health System Research Symposium (MHSRS), Kissimmee, FL August 2016

☐ 11d. PLATFORM PRESENTATION (At civilian institutions: name of meeting, state, and date of meting.)

☐ 11e. OTHER (Describe: name of meeting, city, state, and date of meeting.)

12. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC
NOTE: All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC).

DATE	

13. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email)	14. DUTY PHONE/PAGER NUMBER
Valtier, Sandra sandra.valtier@us.af.mil	292-0504

15. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.

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f.			

I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401_IP, AND 59 MDWI 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.

16. AUTHOR'S PRINTED NAME, RANK, GRADE	17. AUTHOR'S SIGNATURE	18. DATE
Sandra Valtier/GS13	VALTIER.SANDRA.1230996403	May 05, 2016
19. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE	20. APPROVING AUTHORITY'S SIGNATURE	21. DATE
Kevin Steel, Lt Col 59MDW/STV Deputy Chief Scientist	STEEL.KEVIN.E.1162266558	May 05, 2016

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

1st ENDORSEMENT (59 MDW/SGVU Use Only)

TO: Clinical Research Division 59 MDW/CRD Contact 292-7141 for email instructions.	22. DATE RECEIVED May 05, 2016	23. ASSIGNED PROCESSING REQUEST FILE NUMBER 16198
24. DATE REVIEWED 10 May 2016		25. DATE FORWARDED TO 502 ISG/JAC

26. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES: ☐ NO ☒ YES If yes, give date. 10 May 2016 ☐ N/A

27. COMMENTS ☒ APPROVED ☐ DISAPPROVED

The author added the DoD disclaimer statement. The article is approved.

28. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	29. REVIEWER SIGNATURE	30. DATE
Rocky Calcote, PhD, Clinical Research Admininstrator	CALCOTE.ROCKY.D.1178245844 Digitally signed by CALCOTE.ROCKY.D.1178245844 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=CALCOTE.ROCKY.D.1178245844 Date: 2016.05.13 07:18:44 -05'00'	

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May 16, 2016	May 17, 2016

39. COMMENTS ☒ APPROVED (In compliance with security and policy review directives.) ☐ DISAPPROVED

40. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	41. REVIEWER SIGNATURE	42. DATE
Christopher Carwile, TSgt/E-6, NCOIC, PA	CARWILE.CHRISTOPHER.STEWART.1280477229 Digitally signed by CARWILE.CHRISTOPHER.STEWART.1280477229 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF, cn=CARWILE.CHRISTOPHER.STEWART.1280477229 Date: 2016.05.17 08:56:29 -05'00'	May 17, 2016

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43. DATE RECEIVED	44. SENIOR AUTHOR NOTIFIED BY PHONE OF APPROVAL OR DISAPPROVAL ☐ YES ☐ NO ☐ COULD NOT BE REACHED ☐ LEFT MESSAGE

45. COMMENTS ☐ APPROVED ☐ DISAPPROVED

46. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	47. REVIEWER SIGNATURE	48. DATE

Correlation between SNPs in Interleukin and Cannabinoid Receptor Genes and Type 2 Diabetes Mellitus in the Military

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Center for Advanced Molecular Detection, Science and Technology, 59 Medical Wing, US Air Force, JBSA-Lackland, San Antonio, Texas

Background: Type 2 diabetes mellitus (T2DM) is a prevalent metabolic disorder in the military population, as in the general population. The main diagnostic index of the condition is hyperglycemia of varying degrees. Pathologic consequences of hyperglycemia are many, and they develop at various stages during the course of the condition. Among them are atherosclerosis, glaucoma, nephropathy, and neuropathy. Certain genetic variations and environmental factors strongly influence the onset and severity of T2DM. Likewise, certain habits of lifestyle, notably poor eating and lack of physical activity, are critical players in onset and severity of the disease. Among the genetic variations that determine susceptibility to T2DM are single nucleotide polymorphisms (SNPs). Indeed the pathologic role of SNPs has emerged as a major focus of the genetics of disease. Thus, a number of SNPs that associate with T2DM or its consequent pathologies have already been identified. This work focused on analyzing 18 SNPs that have been associated with T2DM or one or more of its consequent pathologies. These SNPs occur in 9 genes: IL-1 alpha, IL-1 beta, IL-4, IL-6, IL-10, IL-18, CNR1, CNR2, and FAAH. The population studied represented active duty military personnel, veterans, or their families at the 59 Medical Wing, JBSA-Lackland.

Methods: A repository of genomic DNA isolated from patient blood samples, archived at the Center for Advanced Molecular Detection, 59 Medical Wing, was utilized for this study. The samples were from T2DM patients, as well as healthy individuals (controls). Of the total 866 samples, 613 were diabetes samples and 253 control. SNPs were detected by real-time PCR (TaqMan SNP genotyping assays).

Results: Based on 90 control and 263 diabetes samples, logistic regression analysis (95% confidence limit) revealed that two SNPs in CNR2 gene show strong correlation with T2DM. One is the single nucleotide missense variation designated rs2229579 (C/C homozygous; His316; p-value = 0.00134; odds ratio = 1.880). The other is the tandem dinucleotide variation rs35761398 (GG/GG homozygous; Arg63; p-value = 0.00884; odds ratio = 2.414). The FAAH SNP rs324420 also showed correlation with T2DM (C/C homozygous; Pro129; p-value = 0.0464; odds ratio = 1.665).

Conclusions: The identification of T2DM genetic markers is essential to predicting future risk and preventing the development of complex pathologies that are a significant cost to military health care. We identified three SNPs that show a positive correlation with T2DM in the subject population for this study. Two of these SNPs are in the CNR2 gene, which is largely expressed in immune system cells and is part of the inflammatory response. Further analysis of the SNP genotypes is in progress.